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ABSTRACT

A study was conducted to determine the influence of family background and attitudinal factors on occupational aspirations of Year 9 students in Victoria, Australia. A survey was made of all Victorian Year 9 students and comparisons were made between groups of students who aspired to different occupations. Discriminant function analyses were computed to provide functions that maximally differentiated among students with differing occupational aspirations. The discriminant function analyses were computed separately for each sex and two analyses were computed to predict both boys' and girls' aspirations. For both boys and girls, the results of the analyses indicated that school characteristics were important predictors of aspirations, while self-rating of achievement was the single most important predictor. Students with professional aspirations rated themselves higher in school achievement than did students with lower aspirations. Family background variables had a greater influence on boys' aspirations than on girls' aspirations. Boys' aspirations were highly related to father's occupation and moderately related to ethnic background and mother's employment status. Ethnic background, however, was the only family background variable that was found to relate to girls' aspirations. On the other hand, the influence of significant others (teachers, parents) was unrelated to boys' aspirations but was an important predictor of girls' aspirations. (KC)

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FACTORS INFLUENCING THE VOCATIONAL ASPIRATIONS OF VICTORIAN YEAR 9 STUDENTS

Linda K. Schrom

Victorian Institute of Secondary Education

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Introduction

Background and Purpose of the Study

One of the objectives of the Victorian Institute of Secondary Education is to provide assistance to Victorian secondary school students in their transition from secondary school to their post-school destinations. This objective is specified in section 4(1(a)) of the VISE Act:

> ...to provide assistance for persons who are in a process of transition from secondary school to further studies or employment, or from employment to further studies on a basis of adequate information, consultation, guidance and preparation.[1]

Because of its responsibility to assist students, it is essential for VISE to ensure that its policy decisions reflect the actual needs and characteristics of all students. The transition needs of students vary depending upon the time at which they leave school and their post-school destinations. Other factors, such as sex or ethnic background, may also contribute to the differing needs of students. It is therefore important for VISE to consider the specific needs of certain groups of students (e.g., migrants, girls, early school-leavers). The purpose of the present study is to collect information that will enable VISE to determine the transition needs of secondary school students and thereby formulate policy that reflects those needs.

The VISE Longitudinal Study of Secondary School Students was conceived in 1978 as a means of obtaining information about the determinants of students' vocational and educational plans and aspirations and the relationship between plans and actual outcomes. A longitudinal framework was chosen to allow for the identification of long-term relationships among variables and the measurement of changes in variables over time.

In order to determine factors that influence plans and outcomes, it was decided to obtain attitudinal information as well as information about students' expectations and aspirations. Many researchers have examined and described the interrelationships that exist between attitudes and ability, achievement, expectations and aspirations and have concluded that attitudes appear to play an important role in cognitive development, career

development and school-leaving behaviour. It was felt that the effects of attitudes toward school and school subjects could not be ignored in an investigation of the development of students' vocational and educational plans.

During 1979 questionnaires were developed and pilot tested on a sample of Year 9 students. The instruments consisted of a general background questionnaire, a survey of vocational and educational plans, attitudes toward school and school subjects inventories and a sex-role attitude scale. The survey was subsequently modified on the basis of the pilot test results.[2] In May 1980, the survey was administered to a representative sample of Year 9 students.

The Sampling Method

The population being sampled comprised all Year 9 students enrolled in government, Catholic and non-Catholic independent schools in the state of Victoria. The method of selection used was stratified proportionate sampling (see Kish, 1965, pp. 82-86, 98-102). This procedure involved the classification of all Victorian secondary schools into various strata as defined below. Schools were then randomly selected from within strata. A proportionate sampling method was used so that strata would be represented in the sample according to their actual occurrence in the population.

To ensure a representative sample, schools were stratified according to the following school characteristics:

- Location (metropolitan, country and country-urban)
- Affiliation (government, Catholic and other independent)
- Sex-type (single-sex and coeducational)
- Orientation (high schools and technical schools)

When more than one school was selected from a stratum, size of school was also taken into account. A more detailed account of the sampling methodology is given in Appendix 2 of the main report.[3]

The Sample

Twenty-six Victorian secondary schools were selected for the sample. All

Year 9 students from selected schools were surveyed, resulting in a sample of 2295 students. The number and percentage of students within each stratification category is as follows:

		N Males	N Females	Total N	%
Location	metropolitan	793	735	1528	67
	country-urban	230	216	446	19
	country	151	170	321	14
Affiliation	government	884	662	1546	67
	Catholic	150	376	516	23
	independent	140	83	223	10
Sex-type	single-sex	570	466	1036	45
	coeducational	604	655	1259	55
Orientation	high school	693	1045	1738	76
	technical school	481	76	557	24

FACTORS INFLUENCING THE VOCATIONAL ASPIRATIONS OF VICTORIAN YEAR 9 STUDENTS

This report focuses on the process of vocational choice. The purpose of the report is twofold: to describe the vocational aspirations of Victorian Year 9 students in 1980, and to provide some understanding of the factors that influence Year 9 students in their choice of a vocation.

Researchers have recently noted that the process of occupational aspiration formation has not been extensively studied in Australia (Punch & Sheridan, 1978; Punch & Waugh, 1980; Sinclair et al., 1977). Of the studies that have been conducted, most focus upon the direct effects of a few factors on occupational aspirations, but few examine the effects of interactions among variables (Sinclair et al., 1977). In the present study, the influence of several factors which have been shown to relate to students' occupational aspirations are studied simultaneously. The effects of variables are not measured in isolation but are considered as parts of an inter-related set of factors influencing vocational choice.

Family Background Variables

In considering the variables that influence occupational aspiration, the effects of family background variables must be taken into account. Father's occupational level, which has been used by many researchers to reflect family socio-economic status, and ethnic background are two important family background influences. Both have been shown to relate to students' school-leaving behaviour, achievement and vocational and educational aspirations (Poole, 1978a, 1978b; Williams et al., 1980a, 1980b; Sturman, 1979). In addition to father's occupation and ethnic background, the effect of mother's employment status on vocational aspiration is also considered in the present study. Although it has not been as extensively studied as father's occupation or ethnic background, mother's employment status has been related to school-leaving behaviour and girls' employment plans (Poole, 1979; Crawford, 1978; O'Leary, 1974).

School Characteristics

The effects of several school characteristics are considered in the present study: location (i.e., metropolitan, country or country-urban), affiliation

(i.e., government, Catholic or independent), sex-type (i.e., single-sex or coeducational) and orientation (i.e., high school or technical school). With the exception of school sex-type, these school characteristics have been studied by several researchers and have been related to achievement, school-leaving behaviour, aspirations and attainment (Poole, 1978a, 1978b; Sturman, 1979; Williams et al., 1980a, 1980b).

The extent of disadvantage experienced by students from rural areas is a concern of the present study. The Commission of Inquiry into Poverty (1976) found that rural students were disadvantaged by a lower retention rate and lower expectations and aspirations than students from metropolitan areas. This conclusion has been disputed by recent research conducted by the Australian Council for Educational Research which suggests that rural students do not experience disadvantage in terms of early school-leaving, unemployment or occupational attainment (Williams et al., 1980a, 1980b). However, the results of the ACER research are at variance with other research on transition (Sturman, 1979; Stoessiger, 1980).

The possible disadvantage of students who attend government schools is also considered in the present study. Disadvantages which have been associated with government schools include lower retention rates, lower achievement, lower vocational aspirations and lower participation rates in tertiary education (Carpenter, 1980; Poole, 1978b; Williams et al., 1980a). These sorts of disadvantages have also been found for technical school students, when compared to high school students (Poole, 1978b).

Influence of Significant Others

Recent research indicates that students' aspirations are influenced by the expectations of their parents and teachers (Punch & Sheridan, 1978; Williams et al., 1980b). Students' vocational and educational aspirations were found to be more highly related to their parents' and teachers' expectations than to socio-economic and ability factors (Punch & Sheridan, 1978). Parental expectations have also been shown to be related to tertiary study and school-leaving behaviour (Carpenter, 1980; Poole, 1978a). In the present study two measures of the influence of significant others are considered: the frequency with which students discuss their job plans with parents, teachers and friends; and students' perceptions of whether or not these significant others approve of their vocational aspiration.

Personal Assessments

Two self-assessment variables which have been shown to relate to vocational aspirations are measured in the present study: self-rating of school achievement and degree of certainty about vocational decision. Self-concept of educational achievement has been found to be highly related to both the educational and occupational aspirations of students (Punch & Waugh, 1980; Williams et al., 1980b). Degree of job decisiveness appears to be related to the time at which students anticipate leaving school. Research has indicated that students are more decisive and realistic about their vocational choices when they reach the point where they have to make vocational decisions (Sinclair et al., 1977, Kelso, 1975).

THE VOCATIONAL CHOICES OF VICTORIAN YEAR 9 STUDENTS

Students' occupational aspirations are summarised in the table below. The most popular occupational category was the professional category, with 40% of boys and 44% of girls aspiring to professional jobs. This finding is consistent with those of other studies in which students' aspirations were unrealistically high when compared to the proportion of students who will actually attain professional positions (Keeves & Schrom, 1977; Sindhu, 1980). According to the 1971 census statistics, about 11% of the workforce are engaged in professional occupations (Broom et al., 1977).

After the professional category, the next most popular category for the boys' occupational choices was the skilled trades. Seventy percent of the boys' occupational aspirations were in the professional and skilled categories. The second most popular category for girls' occupational choices was the unskilled/service category, followed by the white-collar/ clerical category. Seventy-three percent of the girls occupational aspirations were in the professional, unskilled/service and white-collar/ clerical categories. For the most part, students' occupational aspirations corresponded to traditional sex stereotypes, with boys aspiring to professional or skilled jobs and girls aspiring to professional, service or clerical jobs.

OCCUPATIONAL ASPIRATIONS OF YEAR 9 STUDENTS

Category	Victoria, 1980		Australia, 1970	
	% Males	% Females	% Males	% Females
Labourer	1.1	-	0.4	0.1
Farm Worker	1.8	0.9	1.1	0.2
Unskilled/Service Worker	3.1	16.0	3.5	11.8
Semi-Skilled	5.1	1.3	4.4	3.2
Skilled	29.8	5.6	26.2	1.2
White Collar/Clerical	9.2	12.8	11.3	25.7
Managerial	1.7	0.7	5.2	0.4
Lower Professional	10.8	29.2	10.2	40.2
Upper Professional	29.3	14.9	26.5	8.3
Glamour Jobs	2.0	8.2	-	-
Unclassified or Missing Data	6.1	10.3	11.3	8.8

The occupational categories used were developed by Broom et al. (1965) and are based on census statistics. In the present study it was necessary to include an additional "Glamour Job" category (as used by Sinclair et al., 1977) in order to classify such occupations as movie or rock star, model, cruise director, race car driver, etc.

Comparison of Occupational Choices to 1970 Data

It is interesting to compare the occupational choices of students in the present study to those of students a decade ago. In 1970, as part of the International Education Association (IEA) Science Project, occupational preferences were collected from a representative Australia-wide sample of over 5000 14 year-old students (Keeves & Schrom, 1977). In the present study, the sample was representative of Victorian Year 9 students and comprised 2300 students, of which 79% were age 14.

Boys' Occupational Choices

A comparison of the 1970 and 1980 boys' occupational preferences reveals similar patterns of job choices. For both samples, the two most popular categories were the Upper Professional and Skilled categories (with each category comprising about 26% of the choices in 1970 and 29% in 1980). For both samples, the next two most popular categories were the Lower Professional and White Collar/Clerical categories (comprising 10% and 11% of 1970 job choices and 11% and 9% of 1980 job choices, respectively). Thus, in both 1970 and 1980, the majority of the boys' occupational choices were in the Professional and Skilled categories.

The percentage of unclassified/missing responses was 11% in the 1970 sample in comparison to 6% missing responses in the 1980 sample. Because the actual percentage of missing responses is not given for the 1970 data it is impossible to determine if the proportion of boys who did not make a job choice is smaller in the 1980 data. The only other category with a substantial difference in percentage between the two samples was the Managerial category which decreased from 5.2% in 1970 to 1.7% in 1980.

Girls' Occupational Choices

Some differences between the 1970 and 1980 girls' occupational choices are notable. In 1970, 40% of the girls chose jobs in the Lower Professional category (which comprises the occupations of nurse, teacher, creative artist and technician). The percentage of girls choosing jobs in this category decreased to 29% in 1980, with a corresponding increase (from 8% in 1970 to 15% in 1980) in the percentage choosing jobs in the Upper Professional category. Thus, although the percentage of girls choosing "Professional" jobs has remained fairly constant from 1970 (49%) to 1980 (44%), fewer girls are choosing Lower Professional jobs and more girls are choosing Upper Professional jobs.

The second most popular category in 1970 was the White Collar/Clerical category which comprised 26% of the girls' choices. In 1980 the percentage in this category was half that of 1970 with only 13% of girls choosing clerical jobs. On the other hand, in 1980 there was an increase in the percentage of girls choosing jobs in the Unskilled/Service and Skilled Categories (from 12% to 16% and 1% to 6%, respectively). The increased

percentage of Service/Unskilled preferences in the 1980 sample could be due to two occupational choices: eight percent of the girls in the 1980 sample specified the vague job preferences "working with children" and "working with animals" and these job choices were classified into the Unskilled/ Service category.

While at first glance it might appear that girls in the 1980 sample chose a wider range of occupational categories than girls in the 1970 sample, closer scrutiny of the girls' actual occupational choices reveals traditional sex stereotypes. Girls who chose jobs in the Skilled category aspired to three traditionally feminine occupations: cooking (i.e., baker, chef or caterer), sewing (i.e., tailor or fashion designer) and interior decorating. Fewer than one percent of the girls aspired to traditionally male trades. The increased interest of girls in the Unskilled/Service occupations is largely due to a desire to work with children or animals. In terms of widening the range of occupations chosen by girls, the only encouraging results in the 1980 data are seen in the Upper Professional category where girls chose such occupations as medical practitioner/ veterinarian/dentist (5%), psychologist/scientist/university teacher (5%), solicitor/judge (2%) and computer programmer (2%). However, more than half the girls who aspired to professional occupations chose the traditionally feminine jobs of teacher or nurse/paramedical.

METHOD OF DATA ANALYSIS

The present study is an investigation of the factors that influence the vocational aspirations of Year 9 students. The effects on aspiration of family-background variables, school characteristics, opinions of significant others and personal assessments are explored. To fully understand how these variables relate to students' aspirations, it was necessary to employ a multivariate data analysis technique to analyse the data. When the effects of several variables are being considered, it is important to use multivariate analysis so that interrelationships among variables are taken into account.

The multivariate analysis used to analyse the data was discriminant function analysis. Discriminant function analysis is a means of determining differences that exist among specified groups on a number of variables (Tatsuoka, 1971). In the present study, students were allocated into groups

on the basis of their occupational aspirations. Several dependent variables were measured which were expected to relate to occupational choice. Discriminant function analysis was then used to relate the dependent variables to aspiration group membership. The results of the analysis identified those variables on which students of differing aspirations significantly differed and determined the contribution of each variable in discriminating among students' aspirations, while holding the effects of the other variables constant.

Discriminant function analyses were computed separately for each sex because research suggests that the process of vocational choice differs for girls and boys (Sinclair et al., 1977; Marini & Greenberger, 1978; Punch & Sheridan, 1978; Punch & Waugh, 1980). Two discriminant function analyses were computed to predict both boys' and girls' aspirations. Family background variables, influence of significant others and personal assessment variables were used as dependent variables in the first analysis. In addition to the dependent variables used in the first analysis, the school characteristics variables were used as dependent variables in the second analysis. The purpose of computing two analyses was to determine the amount of additional information provided by the school characteristics in determining occupational aspiration.

To assess the usefulness of the discriminant function analysis in differentiating among students' occupational aspirations, classification analyses were computed. Classification analysis is a method of comparing predicted group membership, as defined by the discriminant function, to actual group membership (Nie et al., 1975). The extent to which predicted group membership corresponds to actual occupational aspiration group is an indicator of the utility of the discriminant function in predicting occupational aspiration.

Dependent Variables

The dependent variables used to discriminate among occupational groups consisted of variables reflecting family background (i.e., father's occupation, migrant status, mother's employment status), influence of significant others (i.e., frequency of job discussions with others, others' opinions of suitability of job choice), personal assessments (i.e., self-rating of school achievements, job decisiveness) and school

characteristics (i.e., affiliation, location, orientation, sex-type). A brief description of the method of measurement and scoring of each variable follows:

- Father's Occupation

  Father's occupation was classified according to the Broom et al. (1965) scale which reflects socio-economic status and occupational prestige. Possible scores ranged from 1, representing low status, to 6, representing high status.

- Migrant Status

  A measure of migrant status was developed to differentiate between families from non-English-speaking countries and families from Australia or another English-speaking country. One point was scored if the student was born outside of Australia or other English-speaking country; one point was scored for each parent born outside Australia or other English-speaking country. Thus possible scores ranged from 0, indicating that student and both parents were born in Australia or other English-speaking country, to 3, indicating that the student and both parents were born outside Australia or other English-speaking country.

- Mother's Employment Status

  A measure of maternal employment status was obtained by asking students if their mothers were employed outside the home. This was a dichotomous variable scored 0 for no, 1 for yes.

- Frequency of Job Discussions with Others

  Students indicated the frequency of their discussions about future plans with significant others (i.e., careers teacher, other teachers, parents, friends at school and other friends). Total scores ranged from 0, indicating no discussions with anyone, to 10, indicating frequent discussions with all significant others.

- Suitability of Job Choice

A measure of students' perceptions and awareness of others' opinions about the suitability of their vocational choice was obtained. Total scores ranged from 0, indicating that the student was unaware of others' opinions or felt others found his/her job choice unsuitable, to 5, indicating that all significant others found his/her job choice suitable.

- Self-Rating of Achievement

Students rated their school achievement in the past year. Possible responses were: below average (scored 1), average (scored 2) and better than most (scored 3).

- Job Decisiveness

Students indicated their certainty about their future job plans. Possible scores ranged from 1, indicating that the student had no specific job in mind, to 4, indicating that the student knew exactly the sort of job he or she wanted.

- School Affiliation

A dichotomous variable indicated whether the student attended a government school (scored 0) or a non-government school (scored 1).

- School Location

Schools were classified into one of three rural-urban categories by the Australian Bureau of Statistics. Possible scores were 1 for urban, 2 for country-urban (i.e., urban centres outside of Melbourne), 3 for country.

- School Orientation

A dichotomous variable indicated whether the student attended a high school (scored 0) or a technical school (scored 1).

- School Sex-Type

A dichotomous variable indicated whether the student attended a coeducational school (scored 0) or a single-sex school (scored 1).

RESULTS OF ANALYSES

Analysis of Boys' Occupational Preferences

The criterion variable for the discriminant function analysis was occupational aspiration group. Boys were allocated to one of four occupational groups on the basis of their aspirations. The occupational categories used correspond to those developed by Broom et al. (1965).

Occupational Group	N
Unskilled/Service and Semi-Skilled	97
Skilled	281
White Collar/Clerical and Managerial	139
Professional	391

After eliminating subjects with missing data, the sample comprised 908 boys.

First Discriminant Function Analysis

The first discriminant function analysis produced a significant function ($\chi^2_{21} = 200.3$, $p < .001$) defined by the following standardised weights:

Variable	Weight
self-rating of achievement	.58
father's occupation	.52
migrant status	.40
mother's employment status	.29
job decisiveness	-.15
suitability of job choice	.07
discussions with others	.00

Each variable weight represents the unique contribution of that variable to the function, with the effects of the other variables held constant. To interpret the function it is necessary to consider the direction and relative

magnitude of the variable weights. Self-rating of achievement and father's occupation contribute most to the function, followed by migrant status, mother's employment status, job decisiveness and suitability of job choice. The variable measuring frequency of discussions with others does not contribute to the function, as indicated by the zero weight. The function represents a continuum which can be conceptualised as in Figure 1. Aspiration groups can be positioned on the continuum according to their group mean, or centroid, on the function.

As Figure 1 illustrates, one end of the continuum is defined by boys with professional aspirations who had the following characteristics: they had high self-ratings of achievement, their fathers had high status occupations, they or their parents were more likely to have been born outside Australia, their mothers were more likely to be employed outside the home and they were somewhat uncertain about their future job plans. The other end of the continuum is defined by boys who had low self-ratings of achievement, whose fathers had low status jobs, whose families were more likely to have been born in Australia, whose mothers were not employed outside the home and who were more certain of their job plans. The group centroid of boys who aspired to unskilled or semi-skilled jobs lies at this end of the continnum. The group centroids of boys aspiring to white-collar and skilled jobs are positioned in between the professional and unskilled group centroids on the continuum. These group centroids are very close to one another and are more toward the end of the continuum defined by boys who aspired to unskilled jobs.

Thus the function which maximally discriminates among boys' occupational aspirations defines a continuum which corresponds to the socio-economic status and prestige rankings of occupations as provided by the Broom et al. (1965) scale. Boys aspiring to high status professional occupations are at one end of the continuum and boys aspiring to low status occupations are at the other end of the continuum.

The results of the classification analysis indicated that 38% of the predicted occupational classifications corresponded to boys' actual occupational aspirations. This is a higher percentage than would be expected by chance, but is less than optimal. The discriminant function was least successful in classifying boys who aspired to white-collar and skilled occupations. This is not surprising, given the proximity of the

FIGURE 1

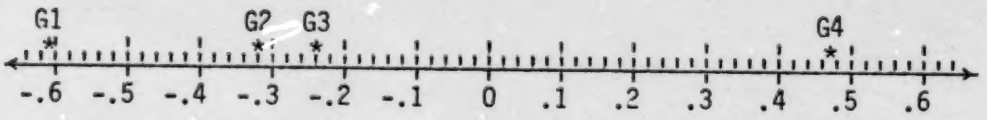
Discriminant Function Depicting Boys' Occupational Aspirations

-low self-rating of achievement

-low SES (as measured by father's occupation)

-born in Australia (or other English-speaking country)

-mother not employed



-high self-rating of achievement

-high SES (as measured by father's occupation)

-born outside Australia

-mother employed outside the home

Group		Centroid
G1	Unskilled/Service and Semi-Skilled	-.61
G2	Skilled	-.32
G3	White-Collar/Clerical and Managerial	-.24
G4	Professional	.47

group centroids for these two groups on the discriminant function. Only 8% of boys who aspired to skilled occupations and 12% of boys who aspired to white-collar occupations were correctly classified. The discriminant function was most successful in classifying boys who aspired to unskilled/semi-skilled and professional occupations, with 58% and 63% of boys in these categories, respectively, correctly classified. Thus the discriminant function was most useful in differentiating between boys who aspired to the lowest and highest level occupations.

Summary of First Analysis

The results of this first analysis indicate that of the family background, influence of significant others and personal assessment variables, self-rating of achievement and father's occupational level were the major determinants of boys' occupational aspirations. Boys who rated themselves above average in school achievement and whose fathers held high status jobs aspired to high level jobs. This finding is consistent with results of other studies in which self-perception of achievement and socio-economic status have been found to be major determinants of students' occupational aspirations (Punch & Waugh, 1980; Williams et al., 1980b). Migrant status and mother's employment status were the next most important determinants of boys' occupational aspirations with boys from migrant backgrounds and boys whose mothers were employed outside the home aspiring to higher level jobs than boys from Australian families and boys whose mothers were not employed. This positive relationship between ethnic background and occupational aspiration is supported by the results of other studies (Williams et al., 1980a, 1980b). The relationship between mother's employment status and boys' occupational aspirations has not been previously investigated; however, the results of one study indicated that students whose mothers were employed were more likely to become early school-leavers (Poole, 1979). In the present study, mother's employment status had a positive effect, with boys whose mothers were employed having higher aspirations.

Boys who aspired to professional jobs were slightly less decisive about their occupational choices. Research has indicated that degree of vocational realism is related to anticipated time of leaving school (Kelso, 1975); thus Year 9 boys who aspired to professional positions may have been less

decisive because they were a long way off from their goals. The variables measuring influence of significant others were not related to the occupational aspirations of the Year 9 boys. This finding contradicts those of other studies in which expectations of parents and teachers and discussions with teachers about plans were highly related to occupational aspirations (Punch & Sheridan, 1978; Williams et al., 1980b).

Second Discriminant Function Analysis

In the second discriminant function analysis, the school characteristics variables were included as additional dependent variables to those used in the first analysis. This analysis produced a significant function ($\chi^2_{33} = 301.6$, $p < .001$) defined by the following standardised weights:

Variable	Weight
self-rating of achievement	.46
school orientation	-.40
father's occupation	.34
school affiliation	.23
school location	-.20
migrant status	.20
mother's employment status	.18
school sex-type	-.11
job decisiveness	-.05
suitability of job choice	.04
discussions with others	.00

The school characteristics variables contributed substantially to the definition of the function, as indicated by the relatively large weights for school orientation, location and affiliation. However, self-rating of achievement remained the primary determinant of occupational aspiration level. The family background, influence of significant others and personal assessment variables contributed in a similar pattern to the second analysis function as they did to the function computed in the first analysis. However, the magnitude of the function weights indicate that the school characteristics variables contributed more to the definition of the function than did many of the variables from the first analysis. The weights for the school characteristics variables indicate that the Year 9

boys who aspired to professional positions were more likely to attend high schools rather than technical schools, were more likely to attend non-government schools and were more likely to live in an urban area. Boys who aspired to unskilled/semi-skilled jobs were more likely to attend technical schools, were more likely to live in a country or country-urban area and were more likely to attend a government school. The continuum which represents the discriminant function and the position of the group centroids on the function is depicted in Figure 2. A comparison of figures 1 and 2 illustrates that the inclusion of the school characteristics variables in the discriminant function analysis resulted in a similar continuum to the first analysis.

A classification analysis indicated 41% correctly classified by the discriminant function, an increase of 3% over the percentage correctly classified by the function in the first analysis. As was the case with the first analysis, the function was most successful at classifying boys who aspired to professional (70%) and unskilled/semi-skilled (60%) occupations, and least successful at classifying boys who aspired to skilled (5%) and white-collar (16%) occupations.

Summary of Second Analysis

When family background, influence of significant others, personal assessments and school characteristics were used to predict the occupational aspirations of Year 9 boys, the resultant discriminant function was defined primarily by self-rating of achievement, school orientation (i.e., high school vs. technical school) and father's occupation. School affiliation and location, migrant status and mother's employment status also contributed moderately to the definition of the function. This finding is supported by the results of other studies which have emphasized the importance of school factors and socio-economic background in determining aspirations (Sturman, 1979). However, it is important to consider the strong relationship between self-perception of school achievement and occupational aspiration level which has been found elsewhere (Punch & Waugh, 1980; Williams et al., 1980b). In differentiating between early school-leavers and those who stayed on at school, Poole (1978a) discussed a "school and career achievement or success press". This notion of a "success press" seems an appropriate concept to define the discriminant function in the present study. Boys who aspired to professional positions

FIGURE 2

Discriminant Function Depicting Boys' Occupational Aspirations

-low self-rating of achievement

-attends a technical school

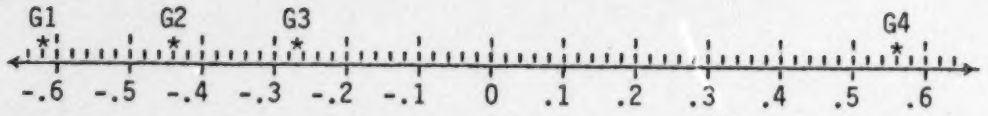
-low SES (as measured by father's occupation)

-attends a government school

-lives in a country or country-urban area

-born in Australia (or other English-speaking country)

-mother not employed



-high self-rating of achievement

-attends a high school

-high SES (as measured by father's occupation)

-attends a non-government school

-lives in an urban area

-born outside Australia

-mother employed outside the home

Group	Centroid
G1 Unskilled/Service and Semi-Skilled	-.62
G2 Skilled	-.44
G3 White-Collar/Clerical and Managerial	-.27
G4 Professional	.56

had not only social and economic advantages (as indicated by the high status of their fathers' occupations and their non-government school educations) but also the personal advantage of a positive self-assessment of achievement consistent with their high aspirations.

The question which is at present unanswered is: to what extent do Year 9 occupational aspirations correspond to actual attained occupations after leaving school? Whether school characteristics variables, family background variables or attitudinal variables at the Year 9 level are long-term predictors of occupation can only be determined in follow-up studies.

Analysis of Girls' Occupational Preferences

The criterion variable for the discriminant function analysis was occupational aspiration group. Girls were allocated to one of four occupational groups on the basis of their aspirations. The first three categories used correspond to the Broom et al. (1965) scale; the "Glamour job" category was included to classify such occupations as movie star, model, air hostess, etc.

Occupational Group	N
Unskilled/Service, Semi-Skilled and Skilled	242
White-Collar/Clerical	130
Professional	463
Glamour	90

After eliminating subjects with missing data, the sample comprised 925 girls.

First Discriminant Function Analysis

The first discriminant function analysis produced a significant function ($\chi^2_{21} = 83.9$, $p < .001$) defined by the following standardised weights:

Variable	Weight
self-rating of achievement	.84
suitability of job choice	.35
father's occupation	.29
discussions with others	-.25
mother's employment status	.12
job decisiveness	.12
migrant status	-.06

The function is primarily defined by self-rating of school achievement, as indicated by the relatively large function weight for this variable. Perceptions of others' opinions about suitability of job choice, father's occupation and frequency of discussions with others also contributed moderately to the definition of the function. Mother's employment status and job decisiveness made a very minor contribution to the function, and the effect of migrant status was negligible. The continuum representing the function is depicted in Figure 3.

As illustrated in Figure 3, one end of the continuum is defined by girls who rated themselves high in school achievement, who perceived that significant others found their job choices to be suitable, whose fathers had high status occupations, and who discussed their plans less often with significant others. The group centroid of girls who aspired to professional jobs lies at this end of the continuum. At the other end of the continuum are girls who rated themselves low in school achievement, who felt that significant others found their job choices to be unsuitable, whose fathers had low status occupations and who discussed their plans more often with significant others. The group centroids of girls who aspired to white-collar/clerical and service/semi-skilled jobs are at this end of the continuum. As Figure 3 illustrates, the group centroid of girls who aspired to glamour jobs was positioned toward the centre of the continuum, but was closer to the centroids of the white-collar/clerical and service/semi-skilled groups than to the professional group centroid.

A classification analysis resulted in 35% of girls being correctly classified into their occupational aspiration group. The discriminant function was most successful at classifying girls who aspired to white-collar/clerical and professional occupations, with 56% and 50% of girls in

FIGURE 3

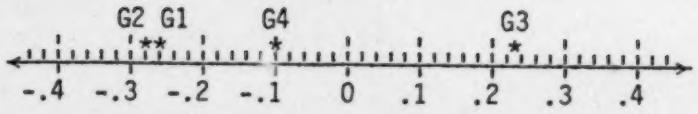
Discriminant Function Depicting Girls' Occupational Aspirations

-low self-rating of achievement

-thinks others find job choice unsuitable

-low SES (as measured by father's occupation)

-discusses job plans with others



-high self-rating of achievement

-thinks others find job choice suitable

-high SES (as measured by father's occupation)

-does not discuss job plans with others

Group	Centroid
G1 Unskilled/Service, Semi-Skilled, Skilled	-.26
G2 White-Collar/Clerical	-.28
G3 Professional	.23
G4 Glamour	-.10

97

these categories, respectively, correctly classified. The function was least successful at classifying girls who aspired to service/semi-skilled and glamour jobs, with only 7% and 9% of girls in these categories, respectively, correctly classified. Thus the discriminant function was most useful in differentiating between girls who aspired to white-collar/ clerical occupations and girls who aspired to professional occupations.

Summary of First Analysis

The results of the first analysis indicated that of the family backgrounds, influence of significant others and personal assessment variables, self-rating of achievement was by far the major determinant of girls' occupational aspirations. Girls who rated themselves above average in school achievement were more likely to aspire to professional jobs than to lower level and glamour jobs. Girls with professional aspirations also thought that significant others felt their job choices were suitable, had fathers with high status occupations and discussed their plans less often with significant others.

The characteristics of girls who aspired to white-collar/clerical occupations were quite similar to those of girls who aspired to service/ semi-skilled jobs, as indicated by the proximity of their group centroids on the discriminant function. If these two groups of girls are combined to form the group of girls who aspired to non-professional occupations, then the Year 9 girls' aspirations can be classified into three categories: professional, non-professional and glamour. The primary difference between these three groups of girls is their self-assessment of school achievement, with girls who aspired to professional jobs rating themselves high in achievement, girls who aspired to non-professional jobs rating themselves low in achievement and girls who aspired to glamour jobs in-between. The importance of self-perception of achievement in influencing occupational aspirations has been noted by other researchers (Punch & Waugh, 1980; Williams et al., 1980b).

After achievement, the influence of significant others variables were the most important determinants of girls' aspirations. Other researchers have found students' aspirations to be related to the influence of significant others (Punch & Sheridan, 1978; Williams et al., 1980b), although no relationship was found between boys' aspirations and the opinions of

significant others in the present study. Girls who aspired to professional jobs were more likely to think that significant others approved of their aspiration, but they reported having fewer discussions with others about their job plans. This is contrary to the finding of another study in which frequent discussions with teachers were found to be positively related to the occupational aspirations of Year 9 students (Williams et al., 1980b).

Of the family background variables, only father's occupation affected girls' aspirations. Girls who aspired to professional positions were more likely to have fathers in high status occupations than girls who aspired to lower level jobs, a finding which is consistent with other research (Williams et al., 1980b; Sturman, 1979). However, ethnic background, which has been found to relate to occupational aspirations in other studies (Williams et al., 1980a, 1980b) and to the aspirations of boys in the present study, was unrelated to girls' occupational aspirations. Similarly, mother's employment status, which has been found to relate to girls' aspirations (Wirtenberg, 1978; Crawford, 1978) had only a very slight positive effect on girls' aspirations in the present study.

Second Discriminant Function Analysis

In the second discriminant function analysis, the school characteristics variables were included as additional dependent variables to those used in the first analysis. This analysis produced a significant function ($\chi^2_{33} = 121.8$, $p < .001$) defined by the following standardised weights:

Variable	Weight
self-rating of achievement	.63
school orientation	-.35
suitability of job choice	.33
school affiliation	.31
school location	-.24
discussions with others	-.21
migrant status	-.19
father's occupation	.10
mother's employment status	.09
job decisiveness	.09
school sex-type	.07

Although self-rating of achievement remained the primary determinant of occupational aspiration in the second analysis, school characteristics contributed substantially to the definition of the function, as indicated by their relatively large function weights. Year 9 girls who aspired to professional jobs were more likely to attend high schools than technical schools, were more likely to attend non-government schools and were more likely to live in an urban area. The influence of significant others remained an important determinant of girls' aspirations in the second analysis. Migrant status emerged as a moderate contributor to the function whereas the effect of father's occupation was reduced. The continuum which represents the discriminant function is depicted in Figure 4. A comparison of figures 3 and 4 illustrates the effect of including the school characteristics variables in the discriminant function analysis. The distance between the centroid of girls who aspired to professional occupations and the centroids of girls who aspired to other occupations increased in the second analysis. The centroid of girls who aspired to glamour jobs is closer to the centroids of girls who aspired to service/semi-skilled and white-collar/clerical occupations.

A classification analysis indicated 39% correctly classified by the discriminant function, in comparison to 35% correctly classified in the first analysis. As was the case with the first analysis, the function was most successful at classifying girls who aspired to professional (59%) and white-collar/clerical (52%) occupations, and least successful at classifying girls who aspired to service/semi-skilled (4%) and glamour (11%) occupations.

Summary of Second Analysis

When family background, influence of significant others, personal assessments and school characteristics were used to predict Year 9 girls' occupational aspirations, the resultant discriminant function was defined primarily by self-rating of school achievement, school orientation (i.e., high school vs. technical school), perception of others' opinions about suitability of job aspiration and school affiliation (i.e., government vs. non-government school). School location, frequency of discussions with others and ethnic background also contributed moderately to the definition of the function. The results of the analysis are consistent with the conclusions of other studies which have emphasized the importance of

FIGURE 4

Discriminant Function Depicting Girls' Occupational Aspirations

-low self-rating of achievement

-attends a technical school

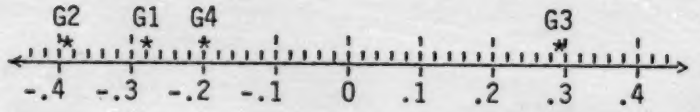
-thinks others find job choice unsuitable

-attends a government school

-lives in a country or country-urban area

-discusses job plans with others

-born outside Australia



-high self-rating of achievement

-attends a high school

-thinks others find job choice suitable

-attends a non-government school

-lives in an urban area

-does not discuss job plans with others

-born in Australia (or other English-speaking country)

Group	Centroid
G1 Unskilled/Service, Semi-Skilled, Skilled	-.28
G2 White-Collar/Clerical	-.39
G3 Professional	.29
G4 Glamour	-.20

self-perception of achievement (Punch & Waugh, 1980; Williams et al., 1980b), school characteristics (Poole, 1978b) and significant others (Punch & Sheridan, 1978; Williams et al. 1980b) in determining students' occupational aspirations.

It is important to note that family background variables did not have a great effect on girls' aspirations. Although socio-economic status, as measured by father's occupation, has been related to students' aspirations in other studies (Poole, 1978b; Williams et al., 1980b) and to the aspirations of boys in the present study, it had only a very small positive effect on girls' aspirations in this second analysis. Of the family background variables, only migrant status influenced girls' aspirations and this was in the opposite direction to its effect on boys' aspirations: girls who aspired to professional positions were more likely to come from Australian families.

The function which differentiated girls who aspired to professional occupations from girls who aspired to non-professional occupations is defined in terms of self-perception of achievement, approval of significant others and school characteristics. Girls who aspired to professional occupations rated themselves high in school achievement, felt that significant others approved of their aspiration and were more likely to attend high schools and non-government schools.

CONCLUSION

In the present study, comparisons were made between groups of Year 9 students who aspired to different occupations. Discriminant function analyses were computed to provide functions which maximally differentiated among students with differing occupational aspirations. By comparing the standardised discriminant function weights, the importance of each variable in discriminating among occupational aspiration group can be assessed.

The discriminant function analyses were computed separately for each sex and two analyses were computed to predict both boys' and girls' aspirations. In the first analysis, aspirations were related to family background, influence of significant others and personal assessment variables. In the second analysis, school characteristics were included as additional dependent variables to those used in the first analysis. For both boys and girls, the results of the analyses indicated that school characteristics were important predictors of aspirations. In considering the relative effects of the dependent variables below, the results of the second analysis (which included family background, influence of significant others personal assessments and school characteristics variables) are discussed.

Achievement

Self-rating of achievement was the single most important predictor of occupational aspiration for both boys and girls. Students with professional aspirations rated themselves higher in school achievement than students with lower aspirations. Achievement factors have been found to relate to school-leaving behaviour and educational aspirations, but they are often omitted from investigations of vocational choice. The importance of self-perception of achievement demonstrated in the present study is supported by other studies in which self-concept of educational achievement was found to be highly related to both occupational and educational aspirations (Punch & Waugh, 1980; Williams et al., 1980b). Whether self-rating of achievement in the present study reflects actual achievement or indicates confidence in ability, or both, cannot be ascertained from the data. However, the demonstrated importance of self-perceptions of achievement in determining occupational aspirations indicates a relationship between a sense of accomplishment at school and an aspiration to attain a high level position in the future.

School Characteristics

The inclusion of school characteristics in the discriminant function analyses tended to eclipse the effects of the other variables, with the exception of self-perception of achievement, as predictors of occupational aspiration. For both boys and girls, school orientation, affiliation and location were highly related to occupational aspiration. Year 9 students who aspired to professional jobs were more likely to attend high schools than technical schools, to attend non-government than government schools and to live in urban areas. To some extent, school characteristics reflect family socio-economic status. However, the relationship between school characteristics and aspiration level found in the present study exists with the effects for father's occupation (which also reflects socio-economic status) held constant. Thus the influence of school characteristics on aspiration level would appear to be more complex than solely a socio-economic status effect. Other researchers have also suggested that school system effects exist over and above socio-economic status factors (Williams et al., 1980a; Sturman, 1979).

The school effects found in the present study are supported by other studies in which students at technical schools (Poole, 1978b) and government schools (Williams et al., 1980a) have been found to have lower aspirations than their high school and non-government school counterparts. The lower aspirations of rural students found in the present study are supported by some research (Sturman, 1979; Stoessiger, 1980; Commission of Inquiry into Poverty, 1976) but are in disagreement with others (Williams et al., 1980a, 1980b). The results of the present study support the conclusion of the Commission of Inquiry into Poverty (1976) that rural students are disadvantaged by low expectations and aspirations. Rural students may be discouraged from aspiring to high level occupations by a scarcity of professional jobs in country areas or the difficulties involved in moving to the city. Perhaps the depressed aspirations of rural students found in the present study are realistic, reflecting limited opportunities and a reluctance to move to the city for training.

School sex-type (i.e., single-sex or coeducational) was not related to the occupational aspirations of boys or girls in the present study.

Family Background Variables

Family background variables had a greater influence on boys' aspirations than on girls' aspirations. Boys' aspirations were highly related to father's occupation and moderately related to ethnic background and mother's employment status. Ethnic background, however, was the only family background variable which was found to relate to girls' aspirations.

Father's occupation was an important predictor of boys' aspirations with boys whose fathers had high status jobs more likely to aspire to professional jobs. Other researchers have also found a positive relationship between father's occupation and level of student's aspiration (Sturman, 1979; Williams et al., 1980a, 1980b). However, in the present study, girls' aspirations were found to be largely unrelated to father's occupation. The relationship between father's occupation and boys' aspirations could indicate the extent to which fathers provide role-models that influence their sons' aspirations, or could reflect a more general socio-economic status effect which does not influence girls' aspirations to the same degree as it influences boys'.

Mother's employment status also positively influenced boys' aspirations but was unrelated to girls' aspirations. This was an unexpected finding because it was anticipated that mother's workforce participation might influence girls' plans. The results of the present study indicate that boys whose mothers are employed outside the home are more likely to aspire to professional occupations but that girls' aspirations are unrelated to their mother's employment status.

Ethnic background had an opposite effect on the aspirations of boys and girls. Boys from migrant backgrounds aspired to higher level jobs than Australian-born boys, a finding which is consistent with the results of other research (Williams et al., 1980b). However, ethnic background had a negative effect on girls' aspirations, with girls from migrant families aspiring to lower level jobs than Australian born girls. This finding could reflect a more traditional attitude toward the vocational roles of boys and girls in migrant families.

Influence of Significant Others

The variables measuring the influence of significant others were unrelated to boys' aspirations but were important predictors of girls' aspirations. Others' opinions about the suitability of their job choice was highly related to girls' aspirations with girls who aspired to professional jobs more likely to feel that significant others approved of their aspiration. Frequency of discussions with others was negatively related to girls' aspirations with girls who aspired to professional jobs less likely to discuss their job plans with significant others. Thus girls with professional aspirations perceived approval from significant others but did not discuss their plans with others as often as did girls with lower aspirations. The results of other research which has indicated that discussions with teachers about future plans is positively related to students' aspiration level (Williams et al., 1980b) is not supported by the findings of the present study.

Job Decisiveness

For the most part, the influence of job decisiveness on students occupational aspirations was negligible. It appears that Year 9 students with differing occupational aspirations do not differ appreciably in their degree of certainty about their aspirations.

Comparison of Analyses of Boys' and Girls' Occupational Aspirations

The discriminant function analyses were most successful in differentiating Year 9 students with professional aspirations from those with non-professional aspirations. The continua which depicted the boys' and the girls' functions were similar in that the group centroid of students aspiring to professional positions were at one end of the continuum and the other group centroids were at the other end of the continuum.

The results of the analyses suggested somewhat different processes of vocational choice for boys and girls, as indicated by differing discriminant function weights. Differing processes of aspiration formation for boys and girls have been suggested by other researchers (Punch & Sheridan, 1978; Punch & Waugh, 1980). Although self-rating of school achievement and school characteristics contributed substantially to the

definition of both the boys' and the girls' discriminant function, other variables contributed differently. Along with achievement and school characteristics, family background variables (i.e., father's occupation, migrant status and mother's employment status) had the most influence on boys' occupational aspirations, whereas the influence of significant others was negligible. However, influence of significant others variables (i.e., others' opinions about job suitability and frequency of discussions with others) were major determinants of girls' occupational aspirations. The only family-background variable shown to affect girls' aspirations was ethnic background. The effect of a migrant family background was to increase the occupational aspirations of the boys and to decrease the girls' aspirations. That the aspirations of boys are influenced more by socio-economic background factors than the aspirations of girls is consistent with recent American research on educational aspirations (Marini & Greenberger, 1978). Sex-type of school and degree of job decisiveness did not substantially influence either boys' or girls' aspirations.

NOTES

1. Victorian Institute of Secondary Education Act 1976, (No. 8904), paragraph 4(1(a)).

2. See Schrom, L. Report on the Pilot Testing for the Longitudinal Study (RP-102-8). Unpublished manuscript, Victorian Institute of Secondary Education, 1980.

3. See Schrom, L. A Survey of Victorian Year 9 Students: Report of the 1980 Data Collection. Victorian Institute of Secondary Education, 1981.

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